

The invention claimed is:

1. A portable wheel alignment apparatus comprising:
a portable unit including a vertical post, the vertical post having a camera boom thereon, the camera boom being adapted to move vertically on the vertical post;
at least one light reflector adapted to be connected to a wheel of a vehicle; and
at least one docking station for the portable unit, each one of the at least one docking station being configured to be positioned in front of a bay for a vehicle whereby the portable unit can be removably positioned in the at least one docking station and an alignment of the wheels of the vehicle in the bay can be measured through interaction of the camera boom and the at least one light reflector.
2. The portable wheel alignment apparatus of claim 1, wherein:
the at least one docking station comprises at least two docking stations.
3. The portable wheel alignment apparatus of claim 1, wherein:
the camera boom of the portable unit includes at least one camera.
4. The portable wheel alignment apparatus of claim 3, wherein:
the at least one camera comprises two cameras.
5. The portable wheel alignment apparatus of claim 1, wherein:
the portable unit further includes a computer for determining the alignment of the wheels of the vehicle.
6. The portable wheel alignment apparatus of claim 1, wherein:
the portable unit includes a hydraulically or pneumatically driven cylinder for moving the camera boom vertically on the vertical post.

7. The portable wheel alignment apparatus of claim 1, wherein:
the portable unit and the at least one docking station include engaging mating structure;
and
the engaging mating structure properly position the portable unit in the at least one docking station when engaged.
8. The portable wheel alignment apparatus of claim 1, wherein:
a first one of the portable unit and the at least one docking station include a retractable pin and a second one of the portable unit and the least one docking station include an opening;
and
the retractable pin is configured to be inserted into the opening to lock the portable unit in place in the at least one docking station.
9. The portable wheel alignment apparatus of claim 1, wherein:
the portable unit includes at least one bump roller;
the at least one docking station includes a front face; and
the at least one bump roller is configured to roll on the front face of the at least one docking station as the portable unit is positioned in the at least one docking station.
10. The portable wheel alignment apparatus of claim 1, wherein:
the portable unit includes at least one push bar for easily moving the portable unit.
11. The portable wheel alignment apparatus of claim 1, wherein:
the at least one docking station is incorporated into a track; and
the portable unit includes rollers slidable along the track.
12. The portable wheel alignment apparatus of claim 11, wherein:
the track is configured to be attached to a ceiling of the bay.

13. The portable wheel alignment apparatus of claim 11, wherein:
the track includes a pair of support posts configured to be mounted to a floor of the bay.
14. The portable wheel alignment apparatus of claim 11, wherein:
the track is straight.
15. The portable wheel alignment apparatus of claim 11, wherein:
the track includes at least one curved section.
16. A method of measuring the alignment of a wheel of a vehicle comprising:
providing a portable unit including a vertical post, the vertical post having a camera boom with a camera thereon;
connecting a light reflector to the wheel of the vehicle;
engaging the portable unit with a docking station;
moving the camera boom vertically on the vertical post;
reflecting light off of the light reflector; and
receiving the light reflected off of the light reflector with the camera.
17. The method of measuring the alignment of a wheel of a vehicle of claim 16, further including:
moving the portable unit to a subsequent station for docking the portable unit;
engaging the portable unit with the subsequent station;
moving the camera boom vertically on the vertical post;
connecting a secondary light reflector to a subsequent wheel of a subsequent vehicle;
reflecting light off of the secondary light reflector; and
receiving the light reflected off of the secondary light reflector with the camera.
18. The method of measuring the alignment of a wheel of a vehicle of claim 16, wherein:
providing a portable unit includes providing the camera boom with at least one camera.

19. The method of measuring the alignment of a wheel of a vehicle of claim 18, wherein:
the at least one camera comprises two cameras.
20. The method of measuring the alignment of a wheel of a vehicle of claim 16, wherein:
providing a portable unit includes providing the portable unit with a computer; and
further including determining the alignment of the wheels of the vehicle with the
computer.
21. The method of measuring the alignment of a wheel of a vehicle of claim 16, wherein:
providing a portable unit includes providing the portable unit with a hydraulically or
pneumatically driven cylinder; and
moving the camera boom vertically on the vertical post includes moving the camera
boom vertically with the hydraulically or pneumatically driven cylinder.
22. The method of measuring the alignment of a wheel of a vehicle of claim 16, further
including:
providing the portable unit and the docking station with engaging mating structure; and
engaging the engaging mating structure to properly position the portable unit in the
docking station.
23. The method of measuring the alignment of a wheel of a vehicle of claim 16, further
including:
providing a first one of the portable unit and the docking station with a retractable pin
and a second one of the portable unit and the docking station with an opening; and
inserting the retractable pin into the opening to lock the portable unit in place in the
docking station.
24. The method of measuring the alignment of a wheel of a vehicle of claim 16, wherein:
providing a portable unit includes providing the portable unit with at least one bump
roller; and

engaging the portable unit with a docking station includes rolling the at least one bump roller on a front face of the docking station.

25. The method of measuring the alignment of a wheel of a vehicle of claim 16, wherein: providing a portable unit includes providing the portable unit with at least one push bar; and further including moving the portable unit by pushing on the push bar.

26. The method of measuring the alignment of a wheel of a vehicle of claim 16, wherein: the docking station is incorporated into a track; and the portable unit includes rollers slidable along the track.

27. The method of measuring the alignment of a wheel of a vehicle of claim 26, further including: attaching the track to a ceiling.

28. The method of measuring the alignment of a wheel of a vehicle of claim 26, wherein: the track includes a pair of support posts configured to be mounted to a floor of the bay.

29. The method of measuring the alignment of a wheel of a vehicle of claim 26, wherein: the track is straight.

30. The method of measuring the alignment of a wheel of a vehicle of claim 26, wherein: the track includes at least one curved section.

31. A portable wheel alignment apparatus comprising:
a portable unit including a camera boom vertically movable thereon, the camera boom including at least one camera;
at least one light reflector adapted to be connected to a wheel of a vehicle; and

at least two docking stations for the portable unit, each one of the at least two docking stations being configured to be positioned in front of a bay for a vehicle whereby the portable unit can be removably positioned in the at least one docking station and an alignment of the wheels of the vehicle in the bay can be measured through interaction of the camera boom and the at least one light reflector;

wherein the portable unit and each of the at least two docking stations include engaging mating structure; and

the engaging mating structure engage to selectively position the portable unit in one of the at least two docking stations.